

NOTES ON THE NON-MARINE MOLLUSCA OF NORFOLK AND PHILLIP ISLANDS, WITH DESCRIPTIONS OF NEW SPECIES.

By E. R. SYKES, B.A., F.L.S., etc.

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PLATE XIII.

SOME little while ago I received from Mr. Suter a shell collected on Norfolk Island, with a request that I would undertake its determination. This led to an examination of the shells in the British Museum, where I found a fairly representative collection formed by John Maegillivray during a voyage of the "Herald," and presented by the Admiralty. The description of this collection is the aim of the present paper. One or two obscure species, and also some single specimens, still await determination, in the hope of further material coming to hand.

Thanks to the kindness of Mr. Hedley, I am enabled to incorporate drawings made by him of species very briefly described by Cox and hitherto unfigured; I am glad to have this opportunity of further expressing my indebtedness to Mr. Hedley for much information on the subject.

As pointed out by Professor Tate and others, the faunal relationship of Norfolk Island lies rather with New Zealand and Lord Howe Island than with the Australian Continent.

1. *MICROCYSTIS NUX*, n.sp. Pl. XIII, Figs. 4 and 5.

Testa subperforata, compacte conica, solidiuscula, cornea, sub lente lineis incrementi notata, nitida; anfractus 5-5½, plano-convexi, lente regulariterque crescentes, ultimus constrictus, antice non descendens, in regione umbilicali valde sed anguste excavatus; apertura lunaris, marginibus callo tenui junctis, dextro acuto, columellari leviter reflexo, incrassatulo. Alt. 4, diam. max. 7 mm.

Hab.—Norfolk Island, under dead leaves (coll. Brit. Mus.).

A small, compactly coiled species, the last whorl constricted in front, with a well-marked depression in the umbilical region; the mouth is slightly thickened within by a white callus, thus causing a lighter-coloured patch to appear behind the outer lip.

2. *MICROCYSTIS CASTANEOCINCTA*, n.sp. Pl. XIII, Figs. 8 and 9.

Testa depresso-conica, solidiuscula, sub lente lineis incrementi notata, microscopice et inconspicue dense spiraliter striata, nitida, cornea, supra et subter peripheriam fascia lata fusco-castanea cincta; anfractus 5½, plano-convexi, regulariter lenteque crescentes, ultimus in regione umbilicali excavatus, sutura leviter impressa; apertura lunaris, marginibus callo tenui junctis, dextro acuto, columellari leviter reflexo, incrassatulo. Alt. 3.9, diam. max. 7.8 mm.

Hab.—Norfolk Island, under dead leaves (coll. Brit. Mus.).

Found with *M. nux*, from which it may be readily distinguished by its colouration and the difference in the relative proportions of height and breadth.

3. *TROCHONANINA PLATYSOMA*, n.sp. Pl. XIII, Figs. 16 and 17.

Testa perdepresso-conica, rimata, costulis obscuris rugiformibus irregulariter notata, apice acutulo; anfractus 5, regulariter lenteque crescentes, ultimus acute carinatus, basi subinflatus; apertura securiformis, marginibus acutis, callo tenui junctis. Alt. 2·5, diam. max. 7·5 mm.

Hab.—Norfolk Island, on and under dead leaves (coll. Brit. Mus.).

A lovely little species, very depressed and acutely carinated, the carina being roughened by the terminations of the costæ, which are flattened but well marked.

FRETUM, nom. nov.

Euryppus, Semper, nec Kirby.

Aulacopus, Pfeffer, nec Serv. (*Colcoptera*).

The radula of the species dissected by Mr. Suter (now described as *F. Suteri*) appears to agree well with that of *Euryppus*, Semper, as figured in his "Reisen im Arch. Philippinen." Unfortunately the name is preoccupied, and since I am unable to ascertain that it has been previously altered, I now venture to replace it, taking as the type Semper's own, namely, *E. casca* (Gould).

4. *FRETUM PHILLIPPI* (Gray).

Helix Phillipii, Gray: Proc. Zool. Soc., 1834, p. 65; Reeve, Conch. Icon., *Helix*, sp. 1443.

Hab.—Phillip Island (Gray).

Only known to me from the type shells described by Gray; the green spotting mentioned by Gray and Reeve appears to be due to specks of dirt inside the shell.

5. *FRETUM SUTERI*, n.sp. Pl. XIII, Figs. 10 and 11.

Testa depresso-turbinata, solidiuscula, lineis incrementi bene notata, nitidula, cornea, zona pallidiore ad peripheriam ornata; anfractus 5, convexiusculi, regulariter lenteque crescentes, ultimus compactus, basi impressus, sutura filiformis bene impressa; apertura ovato-lunaris, margine dextro acuto, columellari versus umbilicem expansiusculo, reflexo incrassato. Alt. 8·8, diam. max. 12 mm.

Hab.—Norfolk Island (coll. H. Suter).

A single specimen of a compact, horn-coloured shell. From *F. Phillipii* it may be distinguished by the deeper suture and more elevated form; the sculpture is also more marked. From the next species, *F. Grayi*, it may be separated by the difference in shape, and also by the absence of any brown band.

The following notes were kindly sent me by Mr. Suter, with permission to incorporate them:—"The only specimen of this species, collected by Mr. Laing, of Christchurch, New Zealand, fortunately

contained the animal. This was, however, so hard that it could only be extracted in pieces, soaking in diluted caustic potash solution not having the desired effect. During that operation the jaw was lost, but there can be little doubt that the species is oxygnathous. Two embryonic shells were extracted. The foot has a parapodial and indistinct diagonal grooves; a caudal pore is present; the sole is tripartite. The radula (Pl. XIII, Fig. 19) has the formula $\infty-11-1-11-\infty$. The marginals on each side number about 100, but it is difficult to count them exactly; they are sinuate, slender, bicuspid, the ectocone becoming smaller in proportion to the mesocone as the laterals are approached; the size of the teeth gradually increases, and the base of attachment is high and narrow. There are a few transition teeth of irregular shape. The laterals are asymmetrical; the mesocone extends beyond the posterior margin of the base, and there is no entocone in the sinuation of the reflexion. The central tooth, long, narrow, and of the same size as the laterals, is symmetrically tricuspoid; the mesocone also extends beyond the margin of the base, and the side cusps are small but distinct."

6. FRETUM GRAYI, n.sp. Pl. XIII, Figs. 6 and 7.

Testa obtecte umbilicata, turbinata, solida, lineis incrementi bene notata, nitidula, albido-cornea, fascia unica brunnea ad peripheriam ornata; anfractus $5\frac{1}{2}$, plano-convexi, regulariter lenteque crescentes, ultimus basi impressus, sutura bene impressa; apertura ovato-lunaris, peristoma intus incrassatum, marginibus callo junctis, columellari versus umbilicum dilatato, umbilicum omnino claudente. Alt. 18, diam. max. 13.5 mm.

Hab.—Norfolk Island, found dead (coll. Brit. Mus.); Phillip Island (coll. Brit. Mus.).

Recalls *F. Phillipii*, Gray, but the present species is more elevated, the suture is deeper, and there is a single brown band in place of a white zone. Its distinction from the preceding species has already been pointed out.

7. ROTULA CAMPBELLII (Gray).

Helix Campbellii, Gray: Proc. Zool. Soc., 1834, p. 65; Reeve, Conch. Icon., *Helix*, sp. 438 and 765.

Rotula Campbellii, Gray: Semper, Reisen im Arch. Phil., Thl. ii, Bd. iii, p. 40, pl. iii, fig. 25; pl. vii, fig. 2.

Hab.—Phillip Island (Gray); Norfolk Island, under dead bark and in rotten wood (coll. Brit. Mus.).

Gray's type-specimen does not belong to the more usual form, but has a white zone above the periphery.

8. MEDYLA INSCULPTA (Pfeiffer).

Helix insculpta, Pfeiffer: Proc. Zool. Soc., 1845, p. 129; Conch.-Cab., *Helix*, p. 243, pl. xxx, figs. 15-18.

Helix basiodon, Morelet: Rev. & Mag. Zool., 1866, p. 165.

Medyla insculpta, Pfeiffer: Suter, Proc. Malac. Soc., vol. iii (1899), p. 330.

Hab.—Norfolk Island.

Mr. Suter has recently placed this species in *Medyla*, on anatomical grounds, and I have followed him. Having examined Morelet's type-specimen, now in the British Museum, I am enabled to state that the suggested identity of these two species is, in my opinion, thoroughly justified, and doubtless Morelet's habitat of "Siam" was an error.

9. *MEDYLA IMITATRIX*, n.sp. Pl. XIII, Figs. 1 and 2.

Testa imperforata, elevato-conoidea, costulis obliquis asperatis regulariter notata, cornea, maculis castaneis picta, apice acutulo, applanato; anfractus $5\frac{1}{2}$, planulati, ultimus carinatus, basi fere lævis, subimpressus, lineis incrementi et spiralibus obscure notata, sutura impressa; apertura rhomboidalis, margine dextro acuto, columellari incrassato, sæpe dente inconspicue, albido, munito. Alt. 5.5, diam. max. 5 mm.

Hab.—Norfolk Island, under dead bark and leaves (coll. Brit. Mus.).

Akin to *M. insculpta*, Pfr., but much more elevated in proportion to the breadth; the base also being somewhat impressed and not inflated. Fresh specimens show a few scattered hairs; one is pure white in colour.

10. *SITALA MACGILLIVRAYI*, n.sp. Pl. XIII, Fig. 3.

Testa subperforata, trochiformis, sub lente leviter et dense striatula, lineis spiralibus notata, nitidula, fusco-cornea, apice obtusulo; anfractus 5, plano-convexi, ultimus carinatus, basi subinflatus, sutura bene impressa; apertura subquadrata, marginibus acutis, columellari subreflexo. Alt. 2, diam. max. 2.1 mm.

Hab.—Norfolk Island (coll. Brit. Mus.).

11. *CARTHÆA STODDARTI* (Gray).

Carocolla Stoddarti, Gray: Proc. Zool. Soc., 1834, p. 65.

Helix Stoddarti, Gray: Reeve, Conch. Icon., *Helix*, sp. 1451.

Helix flosculus, Cox: Proc. Zool. Soc., 1865, p. 695; Journ. de Conch., xiv, 1866, p. 48.

Carthæa flosculus, Cox: Pilsbry, Man. Conch., ser. II, vol viii (1892), p. 77, pl. xxii, figs. 79-81.

Hab.—Phillip Island (Gray); Norfolk Island (Cox, Turner, coll. Brit. Mus.).

In my opinion the shell described by Mr. Cox is only a small race of *C. Stoddarti*; the shape, size, and colour-markings all seem to be variable.

12. *CHAROPA EXAGITANS* (Cox).

Helix exagitans, Cox: Proc. Zool. Soc., 1870, p. 83.

Hab.—Norfolk Island, found in damp places in the pine forests, under leaves (Brazier); between dead leaves (coll. Brit. Mus.). Both the type and the specimen in the Natural History Museum have been broken.

13. CHAROPA (?) DEPSTA (Cox). Fig. I.

Helix depsta, Cox: Proc. Zool. Soc., 1870, p. 84.

Hab.—Norfolk Island, under leaves in damp places (Brazier).
Major diameter of shell 6 mm.

14. CHAROPA (?) QUINTALE (Cox, emend. Brazier). Fig. II.

Helix Quintali, Cox: Proc. Zool. Soc., 1870, p. 82.

Hab.—Norfolk Island, found in the pine forests, under leaves in damp places (Brazier).

Figured from the largest of the type lot; shell 4 mm. in major diameter.

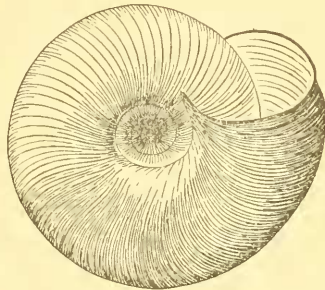
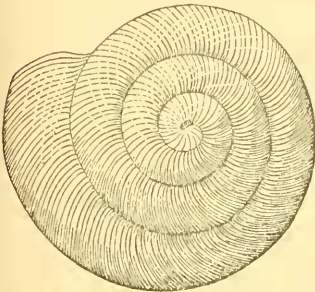
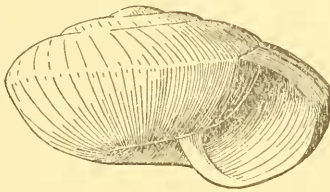


FIG. I.—*Charopa* (?) *depsta* (Cox).

15. CHAROPA (?) PATESCENS (Cox). Fig. III.

Helix patescens, Cox: Proc. Zool. Soc., 1870, p. 84.

Hab.—Norfolk Island, under leaves in damp places (Brazier).

The shell is a little broken on the base, and 'restored' in the drawing; it is 6 mm. in diameter.

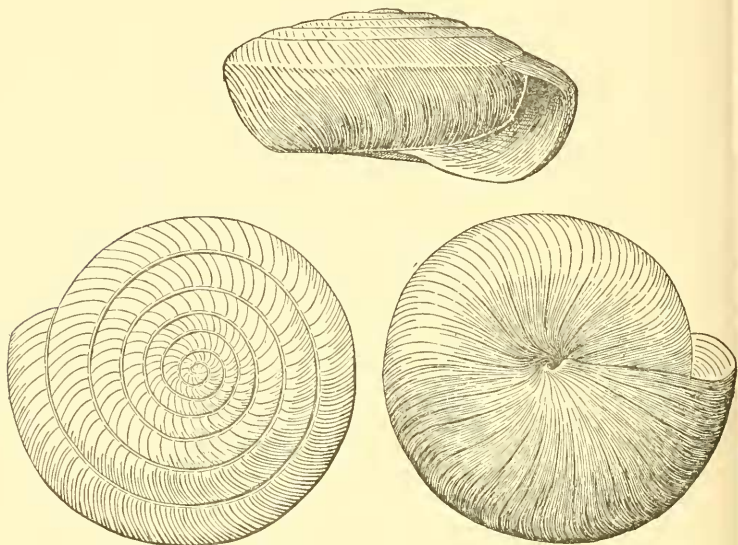
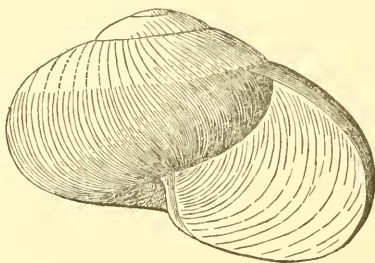
16. ENDODONTA NORFOLKENSIS, Hedley.

Endodonta Norfolkensis, Hedley: Rec. Austral. Mus., iii, p. 152.

Hab.—Norfolk Island (Hedley).

17. *SUCCINEA* (*TAPADA*) *NORFOLKENSIS*, n.sp. Pl. XIII, Fig. 12.

Testa elliptico-ovata, solidiuscula, confertim plicato-striata, nitidiuscula, flavida, apice obtuso; anfractus 3, convexi, sutura profunda separati, ultimus subangulatus; apertura ovata, marginibus callo junctis. Alt. 12, diam. max. 7.2 mm.

FIG. II.—*Charopa* (?) *Quintale* (Cox).FIG. III.—*Charopa* (?) *patescens* (Cox).

Hab.—Norfolk Island, found in great plenty in the valley, etc. (coll. Brit. Mus.).

The spire is blunt, but well drawn out, and the lines of sculpture are well marked; the suture is deeply impressed.

18. VERTIGO NORFOLKENSIS, n.sp. Pl. XIII, Fig. 13.

Testa subperforata, pyramidato-ovata, flavida, subnitens, oblique striata, apice obtusulo; anfractus $5\frac{1}{2}$, convexi, ultimus (cum peristomate) $\frac{1}{2}$ approx. altitudinis testæ æquans; apertura ovata, 7-dentata, dentes 2 parietales, 2 columellares, 3 palatales (supremus minimus); peristoma album, incrassatum, subreflexum, margine exteriore angulum obtusum formante. Alt. 4, diam. max. 2.3 mm.

Hab.—Norfolk Island, in the crevices of the bark of a *Dracena* (coll. Brit. Mus.).

An interesting little form, with tumid whorls; six of the teeth are about the same size, but the lower parietal and upper palatal are very small.

19. OMPHALOTROPIS BRENCHELEYI, n.sp. Pl. XIII, Fig. 18.

Testa mediocriter umbilicata, ovata, solidula, flavido-cornea, obscure longitudinaliter costulata, ad peripheriam carina obscura et lira circa aream umbilicarem munita, apice acutulo; anfractus $5-5\frac{1}{2}$, convexiusculi, ultimus sæpe lineis duabus rufis notatus; apertura elongato-ovata, peristomate incrassatulo, albido-flavo. Alt. 5.5, diam. max. 4 mm.

Hab.—Norfolk Island (coll. Brenchley in Brit. Mus.).

Belonging to the group of *O. navigatorum*, but more inflated, broader in proportion to its height, and with the sculpture less marked, though similar in nature.

20. OMPHALOTROPIS ALBOCARINATA, MOUSSON.

Omphalotropis albocarinata, Mousson: Journ. de Conch., xxi, 1873, p. 115, pl. vii, fig. 3.

Hab.—Norfolk Island (Mousson); amongst dead leaves, one specimen (coll. Brit. Mus.).

This may prove to be a variety of *O. navigatorum*, Pfr., in which the sculpture has become obsolete.

21. OMPHALOTROPIS CEREÆ (Pfr.).

Hydrocæna (Omphalotropis) cerea, Pfeiffer: Proc. Zool. Soc., 1857, p. 112.

Hab.—Norfolk Island (Pfeiffer, coll. Brit. Mus.).

22. OMPHALOTROPIS NAVIGATORUM (Pfr.).

Hydrocæna navigatorum, Pfeiffer: Proc. Zool. Soc., 1857, p. 113.

Hab.—Norfolk Island, amongst dead leaves and rotten wood (coll. Brit. Mus.).

I take these to be a broader, slightly larger, and more highly coloured variety of the species described from the Navigator Islands; the operculum is thin, horny, and paucispiral.

23. *OMPHALOTROPIS SUTERI*, n.sp. Pl. XIII, Fig. 15.

Testa anguste perforata, elongato-trochiformis, tenuiuscula, fere lævis, cornea aut brunneo-cornea, sæpe lineis castaneis spiralibus et lira unica circa umbilicum cineta, apice acutulo; anfractus $6\frac{1}{2}$, appianati, sutura bene notata; apertura piriformis, margine dextro aento, columellari subreflexo, incrassatulo. Alt. 6, diam. max. 2·8 mm.

Hab.—Norfolk Island (H. Suter); under dead wood and leaves (coll. Brit. Mus.).

A pretty little species, recalling *Rissoia eingillus* in shape and colour-pattern.

24. *DIPLOMMATINA COXI*, H. Adams.

Diplommatica Coxii, H. Adams: Proc. Zool. Soc., 1868, p. 446, pl. xxxviii, fig. 11.

Hab.—Norfolk Island (Adams); under dead leaves and wood (coll. Brit. Mus.).

25. *PALUDESTRINA NORFOLKENSIS*, n.sp. Pl. XIII, Fig. 14.

Testa anguste umbilicata, rotundato-ovata, fusco-brunnea, nitidula, fere lævis; anfractus $3\frac{1}{2}$ –4, rapide crescentes, convexi, ultimus magnus, inflatus, sutura valde impressa; apertura ovata, supra angulum formans, peristomate intus incrassato, albido. Operculum fusco-corneum, paucispirale. Alt. 2·5, diam. max. 2 mm.

Hab.—Norfolk Island, in fresh-water streams (coll. Brit. Mus.).

A very small, dark-brown species, with tumid whorls; the peristome is generally thickened all round.

26. *HELICINA PICTELLA*, Pfr.

Helicina pictella, Pfeiffer: Proc. Zool. Soc., 1856, p. 392.

Hab.—Norfolk Island (Pfeiffer, coll. Brit. Mus.).

Helicina Norfolkensis, Pfr. (Proc. Zool. Soc., 1856, p. 391), has had doubt thrown on its specific distinction by Brazier, who expressed the opinion that it was identical with *H. plicatilis*, Mousson, and that it did not really belong to the fauna of Norfolk Island. Mousson (Journ. de Conch., xxi, 1873, p. 114) stated that in his view the species were distinct. I am unable to separate the specimens in the British Museum from *H. beryllina*, Gould, and am of opinion that the localization was erroneous.

Specimens which appear to belong to *Fallonia pulchella*, labelled as from Norfolk Island, are in the British Museum.

